Original Article

Primary Anterior Sagittal Anorectoplasty for Rectovestibular Fistula

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OBJECTIVE: To reduce the morbidity and suffering of patients with rectovestibular fistula (RVF) and to lessen the cost of the staged management protocol.

METHODS: A prospective study was carried out in the Department of Paediatric Surgery of Dhaka Shishu (Children) Hospital, Bangladesh, from January 2002 to February 2004. Twenty-three patients underwent primary anterior sagittal anorectoplasty (ASARP) for RVF, of whom 18 had congenital and five had acquired RVF. Patient age ranged from 15 days to 5 years. The diagnosis was made from history, clinical examination and ultrasonography.

RESULTS: The mean operating time was 90 minutes. There were no major perioperative complications. Three patients developed partial wound disruption in the postoperative period. All patients started oral feeding on the 4th postoperative day and the mean hospital stay was 6 days. The average bowel movements per day were 3–5 motions, without any oral therapy or enema. Two patients had occasional perineal soiling. All patients are being followed-up and the early postoperative results seem acceptable.

CONCLUSION: Primary ASARP is a good procedure for RVF as it is quick and cost-effective and requires no colostomy, laparotomy or laparoscopy. [*Asian J Surg* 2006;29(1):22–4]

Key Words: anorectal malformation, anterior sagittal anorectoplasty, rectovestibular fistula

Introduction

Anorectal malformations (ARMs) have been well known and well recognized since antiquity and represent a wide spectrum of defects.[1] Although imperforate anus is the name given to this condition, most ARMs communicate by a fistula with either the urinary or genital tract or open to the skin of the perineum.[2] ARMs occur in approximately 1 in 4,000 to 1 in 5,000 newborns with a slight preponderance of males.[1,3] The condition is more common in some areas; Chatterjee, for example, cited an incidence of 1 in 1,862 live births in Calcutta.[4] Rectovestibular or anovestibular fistula (vestibular ectopic anus) is the most frequent of all ARMs in female infants.[5]

Despite a better understanding of embryology, the anatomy of ARM and the physiology of continence, the management of children born with ARMs continues to be a surgical challenge and is still fraught with numerous complications and often leads to less than perfect qualitative results.[6–8]

Paediatric patients with rectovestibular fistula (RVF) have good prognosis in terms of bowel function when properly treated. The bowel opens immediately behind the hymen in the vestibule of the female genitalia. Immediately above the fistula, rectum and vagina are separated by a thin common

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wall. These patients usually have well-developed muscles and a normal sacrum and nerves. Meticulous inspection of the newborn genitalia is needed for the diagnosis.[1]

Okada et al devised a new approach, anterior sagittal anorectoplasty (ASARP), for repair of a vestibular fistula, in which sphincter muscles are cut from the anterior aspect longitudinally through a median perineal skin incision and then the rectum is passed through the central portion of the sphincter muscle with the patient in the lithotomy position.[9] Paediatric surgeons repair this defect, primarily without a protective colostomy.[1,10–12] Here, we share our experience with primary ASARP for RVF without a protective colostomy.

Patients and methods

From January 2002 to February 2004, 246 patients with ARMs were admitted to Dhaka Shishu (Children) Hospital; 139 were males and 107 females. Of these ARM cases, 23 (9.3%) with RVF were included in our study. The mean age was 11 months 10 days (range, 15 days to 5 years). Eighteen patients had congenital RVF and five had acquired RVF due to perianal abscess. Patients were diagnosed from history, meticulous clinical examination and ultrasonography. Six patients also had associated anomalies: two patients had renal anomaly (1 pelviureteric junction obstruction, 1 fused kidney), one had a cardiac anomaly (tetralogy of Fallot with atrial septal defect), one had askeletal anomaly (polydactyly) and one had incomplete cleft palate.

All patients underwent primary ASARP without protective colostomy. We found the proposed anal site using an electric neurostimulator. A midline skin incision was used in 17 patients and a tunnel from the proposed anal site to the fistula was used in six. After making the incision, we lay strictly in the midline and identified all the sphincteric muscles. We did not expose the perineum by midline incision in the six patients but made a small incision at the proposed anal site and identified the distal rectum by separating the perirectal muscles and making a tunnel from the anal site to the fistula. The RVF was separated from the vaginal wall by meticulous dissection. The distal rectum including the internal sphincter was pulled out through the muscle complex to the anal opening. Using this procedure, we avoided perineal skin disruption in the postoperative period. We accurately placed the rectum within the muscle complex with the help of a muscle stimulator, after separating the rectum from the vagina. In ASARP, we made the anus using a Nixon inversion proctoplasty,[13] a procedure designed to insert the skin in the anal area into the anal canal. The skin lined anal canal provides proprioception, which may be helpful in differentiating between stool and gas[14] and act as a warning zone for the patient.

In our study, oral intake was withheld 24 hours preoperatively and oral feeding started on the 4th postoperative day. We did not use enema in any patient and were very cautious to prevent intraoperative soiling. Bowel preparation used erythromycin and metronidazole 3 days preoperatively. The dilatation schedule was started on the 14th postoperative day. All patients were followed up at 2, 6 and 12 weeks and 6 and 12 months.

Results

The mean operating time was 90 minutes. Two patients had vaginal tear during separation but there were no major perioperative complications. Three patients developed partial wound disruption around the 5th postoperative day, which healed with cleaning. All patients started oral feeding on the 4th postoperative day. The mean hospital stay was 6 days. The average number of bowel movements per day were 3–5 in all patients, without any oral therapy or enema. Two patients had occasional perineal soiling, which improved with time. All patients are being followed-up at the time of writing and the early postoperative results seem acceptable.

Discussion

RVF or anovestibular fistula is the most common ARM in female infants. To correct this problem, cutback,[15] perineal anal transplant,[9] Y-V and X-Z plasty,[16] colostomy followed by minimal posterior sagittal anorectoplasty[17] and sacroperineal repair[6] have been used. The results of these procedures have not always been satisfactory. In cutback operations, vaginitis and urethritis due to contamination and soiling have been reported and staining occurs from time to time due to mucosal involvement. These procedures have also been limited by incomplete anatomical exposure, blind tunnelling of the rectum, lack of reconstruction of the perineal body, need for a colostomy and a displacing appearance of the perineum, with anterior migration of the anus in the long-term.[18]

ASARP circumvents these disadvantages; colostomy is obviated, mobilization of the rectum is visualized, only the anterior aspect of the sphincteric muscle complex is divided, and the continence mechanism is preserved. Additionally, the operation allows placement and anchoring of the mobilized rectum within the muscle complex, the sphincteric muscle

and the perineal body are accurately reconstituted, and a normal perineum is reconstructed.[18]

In our study, we identified the anal dimple (site of anal opening) externally using an electric nerve stimulator before applying deep sedative muscle relaxant drugs. We also placed the mobilized rectum within the muscle complex with the help of the electric muscle stimulator. Okada et al advocate extensive preoperative and postoperative measures with ASARP.[9]

Optimally, a high imperforate anus should be repaired in the neonatal period.[19] There is evidence that cortical integration of somatosensory input from anal skin may be lost after the 3rd or 4th month of life, if unused.[20] This strongly supports early repair of the high imperforate anus, enabling the development of normal stooling patterns at the appropriate time.[8] ASARP is well suited for neonatal repair; in fact, the younger the patient, the shorter the distance between the perineal skin and rectum and the lesser the degree of tension in the rectoanal anastomosis. When an anterior sagittal incision is used in a neonate, the preoperative difference between low, intermediate and high types becomes less necessary.[21] In our study, 11 patients were neonates. We found that if surgery was performed within the first 3 months of life, the results were better than those of Holschnider and Freeman.[21]

Continence depends on the integrated function of the puborectalis, the internal and external sphincters, normal sensation of rectal fullness and normal discrimination by the anoderm.[21] The presence of a normal rectal reservoir is also desirable. The anterior approach minimizes damage to the posterior nervi erigentes while providing adequate exposure. The internal sphincter is preserved so that normal rectoanal reflexes remain intact.[8]

Our observation shows there is no prolapse, stenosis, soiling or constipation, and adequate rectal tone is maintained following ASARP. Using this procedure, we can adequately reconstruct both congenital and acquired RVF with consistently good results.

Primary ASARP is a good procedure for RVF as it is quick and cost-effective and requires no colostomy, laparotomy or laparoscopy. We believe that this procedure needs minimal tissue dissection and adequate use of surrounding tissues and reproduces nearly normal anatomy.

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